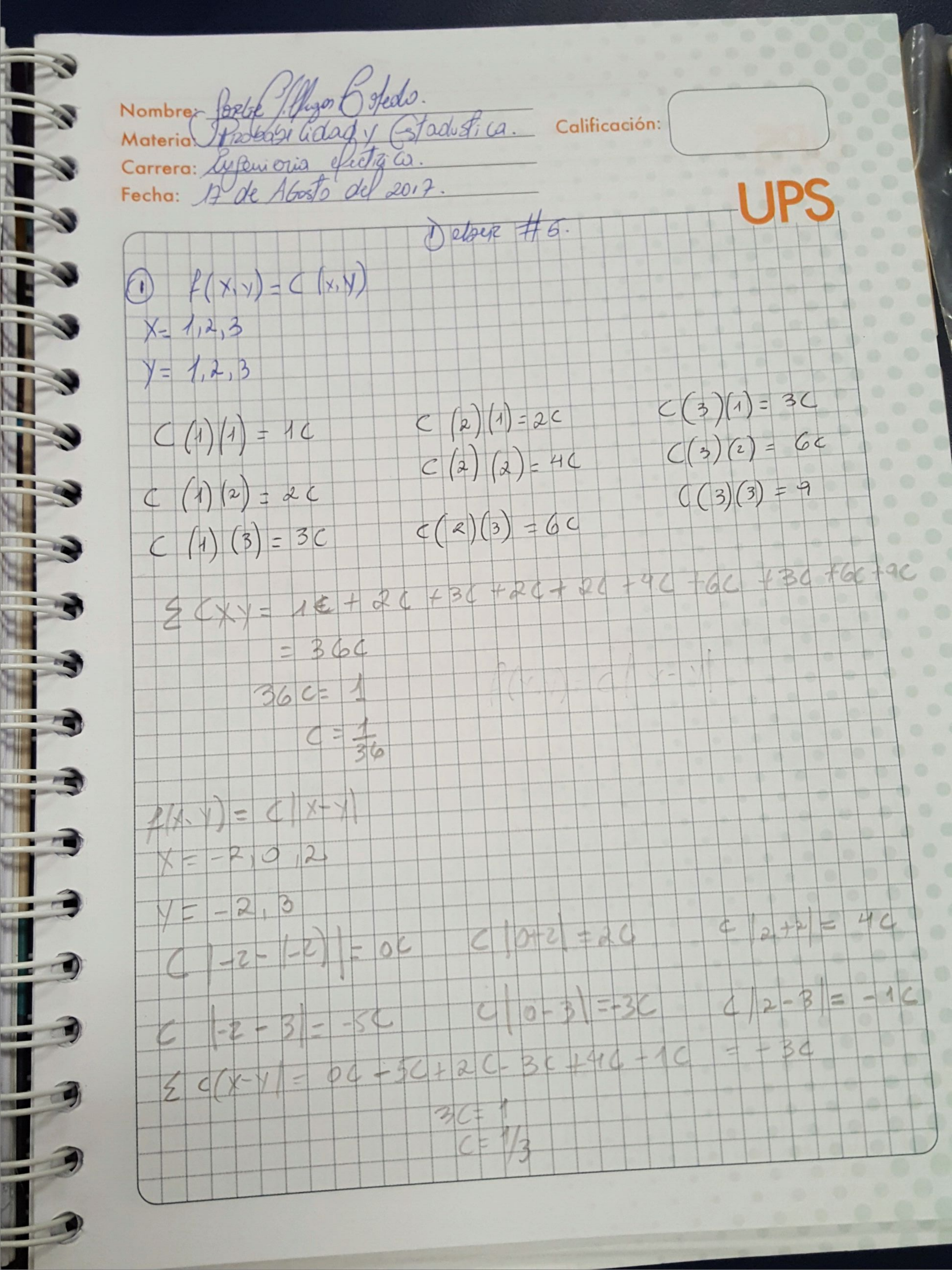


Nombre: [illegible]
Materia: Probabilidad y Estadística.
Carrera: Ingeniería eléctrica.
Fecha: 17 de Agosto del 2017.

Calificación:

UPS

Deber #5.

① $f(x,y) = C(x,y)$

$X = 1,2,3$

$Y = 1,2,3$

$C(1)(1) = 1C$

$C(1)(2) = 2C$

$C(1)(3) = 3C$

$C(2)(1) = 2C$

$C(2)(2) = 4C$

$C(2)(3) = 6C$

$C(3)(1) = 3C$

$C(3)(2) = 6C$

$C(3)(3) = 9$

$\sum Cxy = 1C + 2C + 3C + 2C + 2C + 4C + 6C + 3C + 6C + 9C$

$= 36C$

$36C = 1$

$C = \frac{1}{36}$

$f(x,y) = C|x-y|$

$X = -2, 0, 2$

$Y = -2, 3$

$C|-2-(-2)| = 0C$

$C|-2-3| = -5C$

$C|0+2| = 2C$

$C|0-3| = -3C$

$C|2+2| = 4C$

$C|2-3| = -1C$

$\sum C|x-y| = 0C - 5C + 2C - 3C + 4C - 1C = -3C$

$3C = 1$

$C = 1/3$

UPS

2)

Z = # caras   W = # TOTAL CARAS EN LOS DOS LANZAMIENTOS

C = 0,4   S = 0,6

C < C, S

S < C, S

C C $\frac{2}{3} \cdot \frac{1}{4} = \frac{4}{25}$

C S $\frac{2}{3} \cdot \frac{3}{5} = \frac{6}{25}$

S C $\frac{3}{5} \cdot \frac{2}{5} = \frac{6}{25}$

S S $\frac{3}{5} \cdot \frac{3}{5} = \frac{9}{25}$

0 = $\frac{9}{25}$

1 = $\frac{12}{25}$

2 = $\frac{4}{25}$

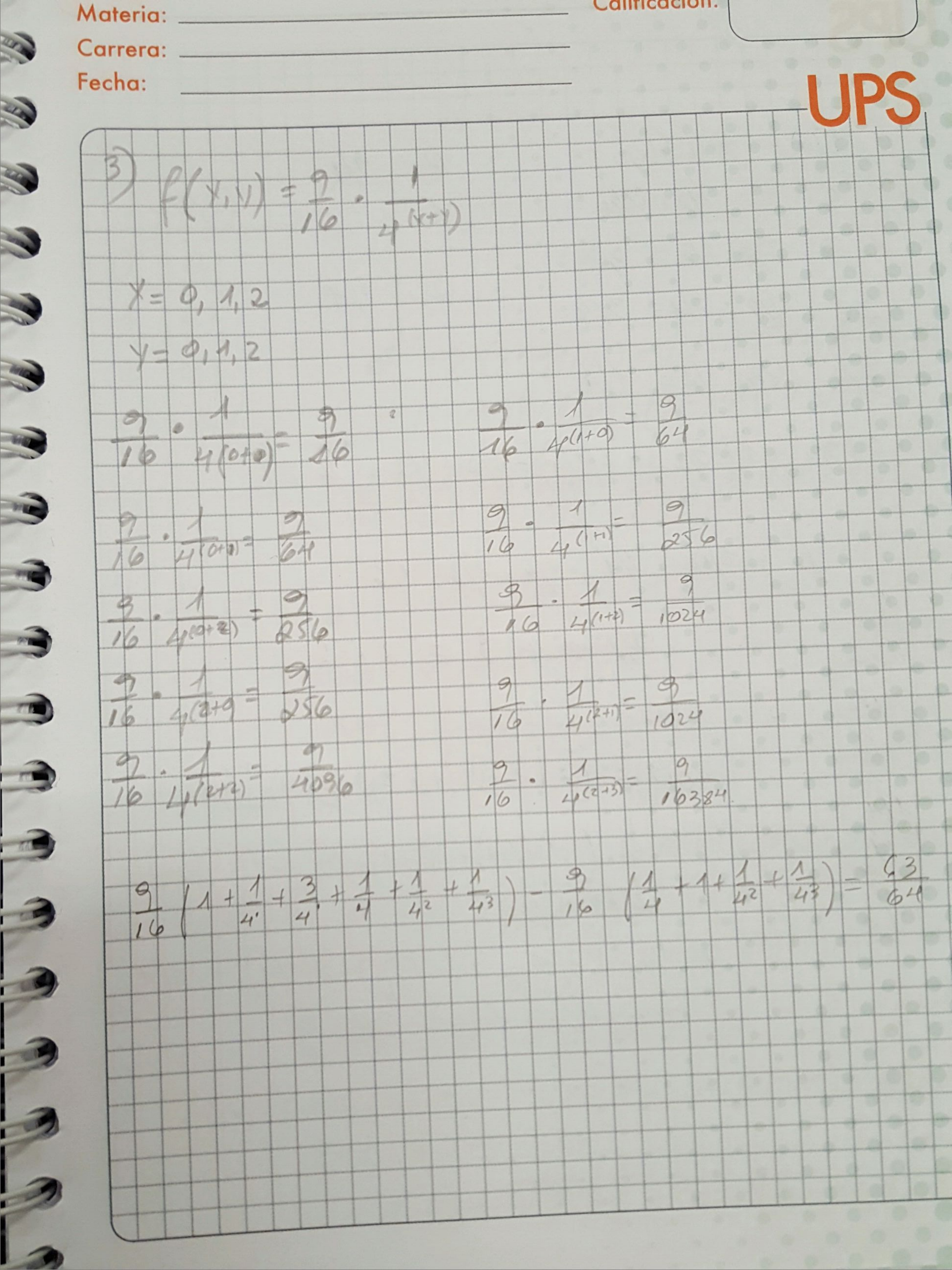
W = # TOTAL caras

$P(w \geq 1) = 0,24 + 0,24 + 0,16 = 0,64$

w	g(w)
0	9/25
1	12/25
2	4/25

Z = # caras

z	h(z)
0	0,6
1	0,4



Materia:

Carrera:

Fecha:

Calificación:

UPS

3) $f(x,y) = \frac{9}{16} \cdot \frac{1}{4^{(x+y)}}$

$x = 0, 1, 2$

$y = 0, 1, 2$

$\frac{9}{16} \cdot \frac{1}{4^{(0+0)}} = \frac{9}{16}$

$\frac{9}{16} \cdot \frac{1}{4^{(1+0)}} = \frac{9}{64}$

$\frac{9}{16} \cdot \frac{1}{4^{(0+1)}} = \frac{9}{64}$

$\frac{9}{16} \cdot \frac{1}{4^{(1+1)}} = \frac{9}{256}$

$\frac{9}{16} \cdot \frac{1}{4^{(0+2)}} = \frac{9}{256}$

$\frac{9}{16} \cdot \frac{1}{4^{(1+2)}} = \frac{9}{1024}$

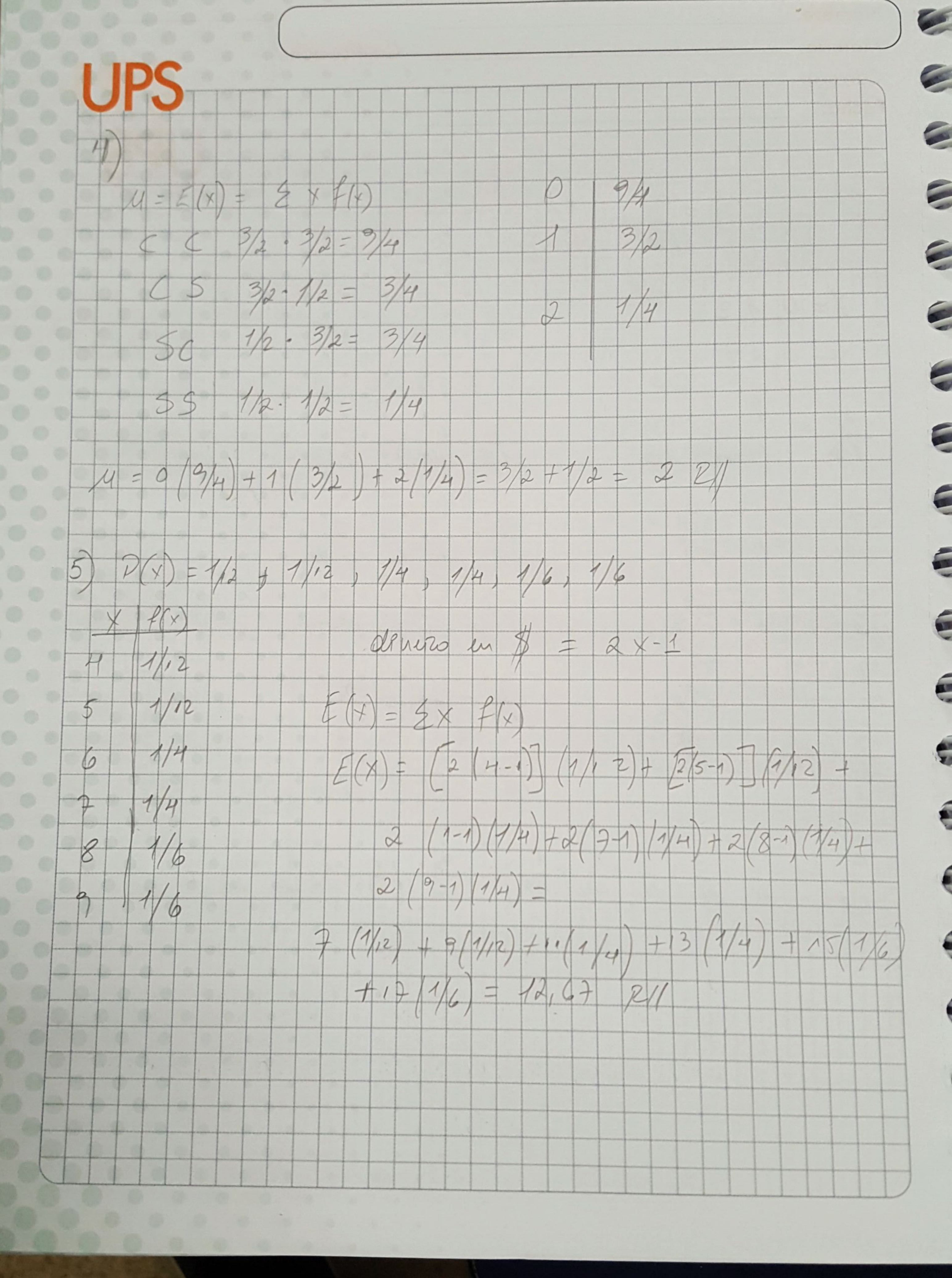
$\frac{9}{16} \cdot \frac{1}{4^{(2+0)}} = \frac{9}{256}$

$\frac{9}{16} \cdot \frac{1}{4^{(2+1)}} = \frac{9}{1024}$

$\frac{9}{16} \cdot \frac{1}{4^{(2+2)}} = \frac{9}{4096}$

$\frac{9}{16} \cdot \frac{1}{4^{(2+3)}} = \frac{9}{16384}$

$\frac{9}{16}\left(1 + \frac{1}{4^1} + \frac{3}{4} + \frac{1}{4} + \frac{1}{4^2} + \frac{1}{4^3}\right) - \frac{9}{16}\left(\frac{1}{4} + 1 + \frac{1}{4^2} + \frac{1}{4^3}\right) = \frac{63}{64}$



UPS

4)

$\mu = E(x) = \sum x\, f(x)$

C C $3/2 \cdot 3/2 = 9/4$

C S $3/2 \cdot 1/2 = 3/4$

S C $1/2 \cdot 3/2 = 3/4$

S S $1/2 \cdot 1/2 = 1/4$

0	9/4
1	3/2
2	1/4

$\mu = 0(9/4) + 1(3/2) + 2(1/4) = 3/2 + 1/2 = 2$ R//

5) $P(x) = 1/12 + 1/12,\ 1/4,\ 1/4,\ 1/6,\ 1/6$

x	f(x)
4	1/12
5	1/12
6	1/4
7	1/4
8	1/6
9	1/6

dinero en \$ $= 2x - 1$

$E(x) = \sum x\, f(x)$

$E(x) = [2(4-1)](1/12) + [2(5-1)](1/12) +$

$2(1-1)(1/4) + 2(7-1)(1/4) + 2(8-1)(1/4) +$

$2(9-1)(1/4) =$

$7(1/12) + 9(1/12) + 11(1/4) + 13(1/4) + 15(1/6)$

$+ 17(1/6) = 12{,}67$ R//

Fecha:

UPS

6)

X	$P(x)$
0	0,1
1	0,2
2	0,3
3	0,4

$\mu = \sum x P(x) = 0(1/10) + 1(1/5) + 2(3/10) + 4(2/5) = 12/5$

$\sigma^2 = \sum (x-\mu)^2 P(x) = (0-12/5)^2(1/10) + (1-12/5)^2(1/5) + (2-12/5)^2(3/10) + (3-12/5)^2(2/5) =$

$\frac{72}{125} + \frac{49}{125} + \frac{6}{125} + \frac{18}{125} = \frac{29}{125} = 1,16$

7)

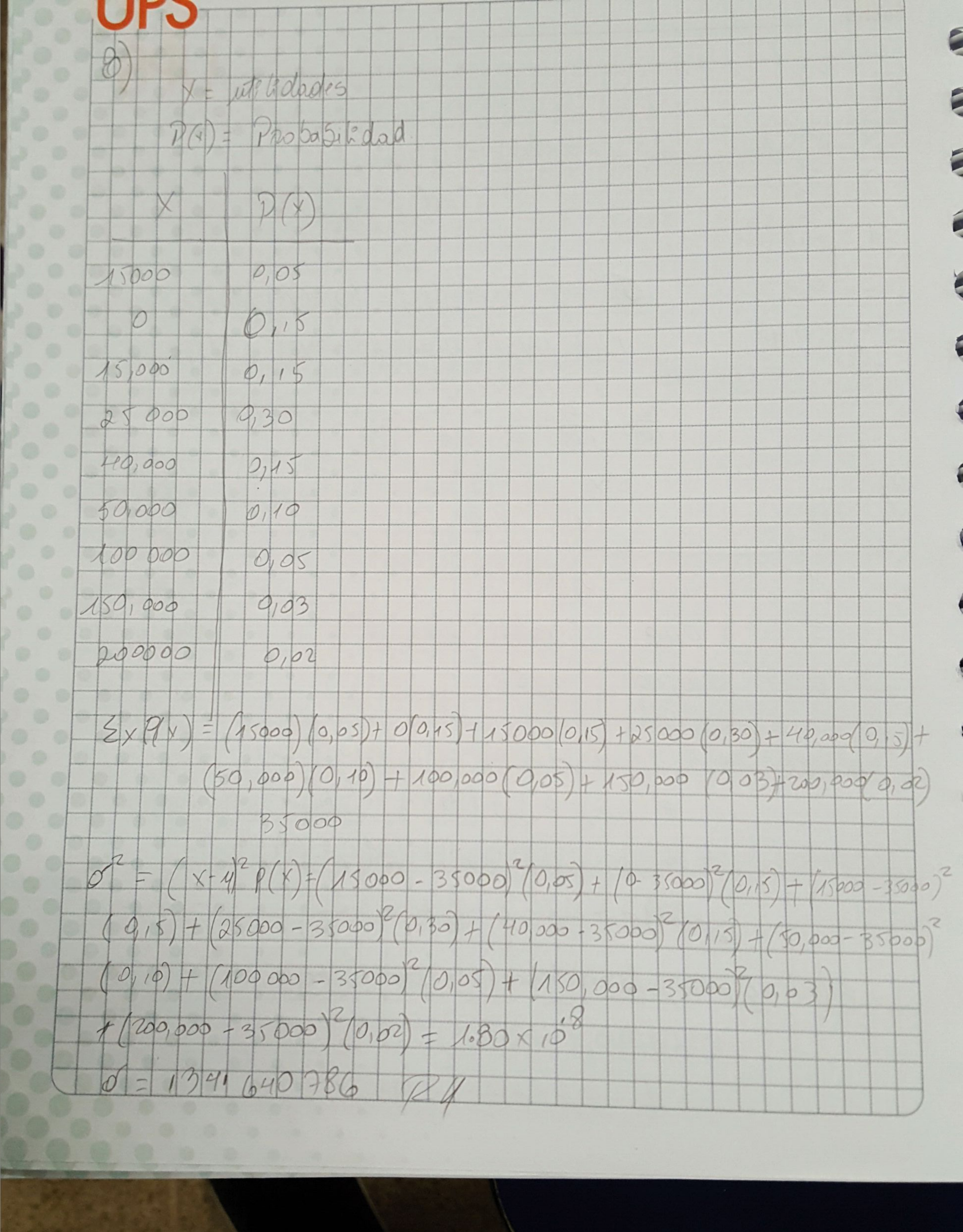
$f(x,y)$	X: 2	4
1	0,10	0,15
3	0,20	0,30
5	0,10	0,15

$E(2x-3y) = \sum x f(x) = (2(2)-3(1))(0,10) + (2(2)-3(3))(0,20) + (2(2)-3(5))(0,10) + (2(4)-3(1))(0,15) + (2(4)-3(3))(0,30) + (2(4)-3(5))(0,15) = \frac{1}{10}$

$\frac{1}{10} + (-1) + \left(-\frac{11}{10}\right) + \frac{3}{4} + \left(-\frac{3}{10}\right) + \left(-\frac{21}{20}\right) = -\frac{13}{5} = -2,6$

$E(xy) = \sum x f(x) = (2(1))(0,10) + 2(3)(0,20) + 2(3)(0,10) + 4(1)(0,15) + 4(3)(0,30) + 4(5)(0,15)$

$\frac{1}{5} + \frac{6}{5} + 1 + \frac{3}{5} + \frac{18}{5} + 3 = \frac{48}{5}$



8)

X = utilidades

P(x) = Probabilidad

X	P(X)
-15000	0,05
0	0,15
15,000	0,15
25 000	0,30
40,000	0,15
50,000	0,10
100 000	0,05
150,000	0,03
200000	0,02

$\sum x P(x) = (-15000)(0,05) + 0(0,15) + 15000(0,15) + 25000(0,30) + 40,000(0,15) +$
$(50,000)(0,10) + 100,000(0,05) + 150,000(0,03) + 200,000(0,02)$

35000

$\sigma^2 = (x-\mu)^2 P(x) = (-15000-35000)^2(0,05) + (0-35000)^2(0,15) + (15000-35000)^2$
$(0,15) + (25000-35000)^2(0,30) + (40,000-35000)^2(0,15) + (50,000-35000)^2$
$(0,10) + (100\,000-35000)^2(0,05) + (150,000-35000)^2(0,03)$
$+ (200,000-35000)^2(0,02) = 1.80 \times 10^{8}$

$\sigma = 134'640786$ R/

Nombre: ______________________

Materia: ______________________ Calificación:

Carrera: ______________________

Fecha: ______________________

UPS

9) X = # Cajas registradoras 1

Y = # caja registradora 2

X \ Y	0	1	2
0	0,12	0,04	0,04
1	0,08	0,19	0,05
2	0,06	0,12	0,30

$\Sigma\, x\, P(x) = 0(0,12) + 0(1)(0,04) + (0)(2)(0,04) + 1(0)(0,08) +$

$1(1)(0,19) + 1(2)(0,05) + 2(0)(0,06) + 2(1)(0,12)$

$+ 2(2)(0,30) =$

$0,19 + 0,1 + 0,24 + 1,2 = 1,73$ R//